UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/552,987	10/13/2005	Shogo Hattori	59494.00022	5846

32294 7590 10/19/2006

SQUIRE, SANDERS & DEMPSEY L.L.P.
14TH FLOOR
8000 TOWERS CRESCENT
TYSONS CORNER, VA 22182

EXAMINER	
LEUNG, KA CHUN ALAN	
ART UNIT	**PAPER NUMBER**
3747	

DATE MAILED: 10/19/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/552,987	HATTORI, SHOGO	
	Examiner	Art Unit	
	Ka Chun Leung	3747	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-4 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-4 is/are rejected.

7)☒ Claim(s) 3 is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 13 OCT 2005 is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date 10132005 07122006.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Objections

2. Claim 3 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

3. The air flow rate sensor stated in claim 1 is stated to be "provided in at least a portion of the plurality of branch pipes". However, claim 3 recites in such a way that the air flow rate sensor, already provided in the branch pipes, is now being provided in the collecting pipe, which does not further limit the previous claim. Based on the specification and Figure 4, it appears that the applicant is attempting to claim an air flow rate sensor in at least a portion of the plurality of branch pipes, and in addition another air flow rate sensor is provided in the collecting pipe.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1 and 2 are rejected under 35 U.S.C. 102(b) as being anticipated by JP-9-4487. JP-9-4487 distinctly discloses an air intake apparatus comprising an air intake manifold with a plurality of branch pipes (15) connected to a plurality of combustion chambers/cylinders (22) in an internal combustion engine. The air intake apparatus further comprising a collecting pipe (4) to which a throttle body (1) is connected. Additionally, flow rate sensors (20) are provided to measure air intake quantity and feedback provided to a control system (25), which can then adjust fuel injection quantity through the fuel injector (21) in each of the respective branch pipe (15). An oxygen sensor (24) is also provided to help determine the proper air to fuel ratio.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP-9-4487 in view of KANKE et al (US 2003/0070494).

9. JP-9-4487 distinctly discloses an air intake apparatus comprising an air intake manifold with a plurality of branch pipes (15) connected to a plurality of combustion chambers/cylinders (22) in an internal combustion engine. The air intake apparatus further comprising a collecting pipe (4) to which a throttle body (1) is connected. Additionally, flow rate sensors (20) are provided to measure air intake quantity and feedback provided to a control system (25), which can then adjust fuel injection quantity through the fuel injector (21) in each of the respective branch pipe (15). An oxygen sensor (24) is also provided to help determine the proper air to fuel ratio. However, JP-9-4487 does not disclose the use of an air flow rate sensor in the collecting pipe.

10. KANKE et al discloses an air flow meter setup for an internal combustion engines, integrating the air flow meter with the throttle to control air intake. KANKE et al discloses in Figure 1, a configuration comprising an intake manifold (between 10 and 19) connected to an internal combustion engine (1), a throttle body (17) connected to the collecting pipe (19). KANKE et al further discloses air flow sensors (141, 161) being installed in the intake passage in order to calculate the fuel injection amount as described in paragraph [0065] with information being relayed to and from the control unit (60). Moreover, the first sensor part (161) is installed in the air intake passage upstream of the throttle valve (17) and the second sensor part (141) is installed in the air intake passage in the downstream throttle valve in order to decrease the error due to

backflow, decrease the error due changes due to opening of the throttle valve, and also be able to detect air flow rate to each cylinder as noted in the Summary of the Invention section.

11. Thus it would have been obvious to a person having ordinary skill in the art at the time the invention was made to have provided the air intake system of JP-9-4487 with an additional air flow rate sensor upstream of the throttle body, in light of the teachings of KANKE et al, such that an air flow rate sensor is provided upstream of the throttle body and in each of the plurality of branches in order to decrease air flow meter error rates and accurately detect air flow rate into each individual cylinder.

12. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over TOPFER et al (US Patent 5,623,900) in view of KANKE et al (US 2003/0070494).

13. TOPFER et al discloses an intake system for an internal combustion engine comprising of an air intake manifold with a plurality of branches (2-5), a collecting pipe (10) to which a throttle body (8) is connected to, and an extended portion (7) which extends towards the branch pipe side. Additionally, note that the throttle body (8) is located between the collecting pipe (10) and the extended portion (7) as shown in Figure 4. However, TOPFER et al does not disclose the use of air flow rate sensors, nor KANKE et al discloses an air flow meter setup for an internal combustion engines, integrating the air flow meter with the throttle to control air intake. KANKE et al discloses in Figure 1, a configuration comprising an intake manifold (between 10 and 19) connected to an internal combustion engine (1), a throttle body (17) connected to

the collecting pipe (19). KANKE et al further discloses air flow sensors (141, 161) being installed in the intake passage in order to calculate the fuel injection amount as described in paragraph [0065] with information being relayed to and from the control unit (60). Moreover, the first sensor part (161) is installed in the air intake passage upstream of the throttle valve (17) and the second sensor part (141) is installed in the air intake passage in the downstream throttle valve in order to decrease the error due to backflow, decrease the error due changes due to opening of the throttle valve, and also be able to detect air flow rate to each cylinder as noted in the Summary of the Invention section.

14. Thus it would have been obvious to a person having ordinary skill in the art at the time the invention was made to have provided the air intake system with an extend portion of TOPFER et al with a multi-sensor air flow meter, in light of the teachings of KANKE et al, in order to reduce the error rate for an accurate air flow rate reading to into the cylinders and allow the fuel injection quantity to be adjusted.

Conclusion

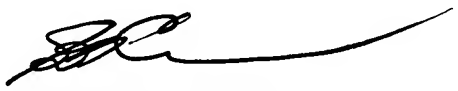
15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure is listed in the attached PTO-892.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ka Chun Leung whose telephone number is (571) 272-9963. The examiner can normally be reached on 7:30AM - 4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Cronin can be reached on (571) 272-4536. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

KCL 03 OCT 2006



STEPHEN K. CRONIN
SUPERVISORY PATENT EXAMINER